



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

December 04, 2013

WELL WORK PERMIT

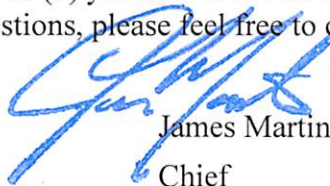
Secondary Recovery Well

This permit, API Well Number: 47-10302724, issued to HG ENERGY, LLC, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: S. L. CRANE 306
Farm Name: BRIGGS, DIANA & DANNY
API Well Number: 47-10302724
Permit Type: Secondary Recovery Well
Date Issued: 12/04/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR § 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR § 4-19.1.c, if the operator is unable to sample and analyze any water well or spring within one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. If well work related activities require the use of water obtained by withdrawals from waters of this state in amounts that exceed two hundred ten thousand gallons during any thirty day period, the operator is required to consult, and adhere to, the guidance provided by DEP's Water Withdrawal Guidance Tool prior to any water withdrawals.

1) Date	October 21, 2013		
2) Operator's Well No.	s. L. Crane No. 306		
3) API Well No.	47	- 103	- 2724
	State	County	Permit
4) UIC Permit No.	UIC2R10304AP		

5)	WELL TYPE:	Liquid Injection	<u>X</u>	Gas Injection (not storage)		Waste Disposal	
6)	LOCATION:	Elevation	<u>939'</u>	Watershed	<u>Little Fishing Creek</u>		
	District	Center	<u>01</u>	County	<u>Wetzel</u>	Quadrangle	<u>Big Run 7.5' 254</u>
7)	WELL OPERATOR:	<u>HG Energy, LLC</u>			8) DESIGNATED AGENT:		
		<u>494497948</u>			<u>Mike Kirsch</u>		
		<u>5260 Dupont Road</u>			<u>5260 Dupont Road</u>		
		<u>Parkersburg, WV 26101</u>			<u>Parkersburg, WV 26101</u>		
9)	OIL & GAS INSPECTOR TO BE NOTIFIED:				10) DRILLING CONTRACTOR:		
	Name	<u>Derek Haught</u>			Name <u>To Be Determined Upon Permit Approval</u>		
	Address	<u>PO Box 85</u>			Address _____		
		<u>Smithville, WV 26178</u>			_____		
11)	PROPOSED WELL WORK:	Drill	_____ Plug Off Old Formation	Drill Deeper	_____ Perforate New Formation	Redrill	_____ Stimulate
		Other Physical Change in Well (specify) _____			Convert <u>X</u>		
12)	Geological target formation	<u>Gordon</u>	Depth	<u>3,154</u>	Ft. (Top) to	<u>3,162</u>	Ft. (Bottom)
13)	Estimated depth of completed well (or actual depth of existing well)	<u>3312'</u>			Ft.		
14)	Approximate water strata depths:	Fresh	<u>50</u>	Ft.	Salt	<u>1,325</u>	Ft.
15)	Approximate coal seam depths:	<u>825</u>			Ft.		
16)	Is coal being mined in the area?	<u>Yes</u>	<u>X</u>	No			
17)	Virgin reservoir pressure in target formation:	<u>60</u>	psig.	Source	<u>Estimated</u>		
18)	Estimated reservoir fracture pressure:	<u>1200</u>	psig.				
19)	MAXIMUM PROPOSED INJECTION OPERATIONS:	Volume per hour	<u>25 bbl/hr</u>	Bottom Hole Pressure	<u>2400 psi</u>		
20)	DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES and other chemicals as needed to maintain water quality and improve oil recovery.				<u>Fresh water, produced water, bactericides</u>		
21)	FILTERS (IF ANY)	<u>Cartridge filters and/or coal bed filters</u>					
22)	SPECIFICATION FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL _____						
23)	CASING AND TUBING PROGRAM _____						

[illegible]

24)	APPLICANTS OPERATING RIGHTS were acquired from			James E. Ashcraft, et al				
	by Deed	Lease	X	Other Contract	Dated	January 1, 2011		of record in the
		Wetzel		County Clerk's Office in	Lease	Book	87A at Page	538

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work

COPY

103 027245

Farm name: BRIGGS, DIANA & DANNY

Operator Well No.: S.L. CRANE 306

LOCATION: Elevation: 939'

Quadrangle: BIG RUN 7.5'

District: CENTER

County: WETZEL

Latitude: 1,315 Feet south of 39 Deg 37 Min 30 Sec.

Longitude: 9,115 Feet west of 80 Deg 35 Min 0 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Derek Haught				
Date Permit Issued:	12/09/2011				
Date Well Work Commenced:	12/27/2011				
Date Well Work Completed:	02/10/2012				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable Rig		7"	933'	933'	190 sks
Total vertical Depth (ft):	3150'				
Total Measured Depth (ft):	3312'				
Fresh Water Depth (ft):	none	4 1/2"	3218.9'	3218.9'	200 sks
Salt Water Depth (ft):	none				
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	924'-931'				
Void(s) encountered (Y/N) depth(s):	NONE				

OPEN FLOW DATA

This well drilled directionally 6.8 degrees NE a distance of 606.37'.

Producing formation Gordon Pay zone (ft) 3024'-3030'
 Gas: Initial open flow 23 MCF/d Oil: Initial open flow 4 Bbl/d
 Final open flow * MCF/d Final open flow * Bbl/d
 Time of open flow between initial and final tests * Hours
 Static rock pressure * psig (surface pressure) after * Hours

Second producing formation Pay zone depth (ft)
 Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
 Final open flow MCF/d Final open flow Bbl/d
 Time of open flow between initial and final tests Hours
 Static rock pressure psig (surface pressure) after Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.

[Signature]
Signature

5/23/12
Date

Received
NOV 13
WV Dept of Environmental Protection

103027295

Were core samples taken? No
 Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
 Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment : Treated perfs 3155.5'-3160.5' w/ 200 bbls x linked gel and 6,000# 20/40 sand.
 Treated perfs 3024'-3030' w/500 gals 15%HCL, 298bbls Crosslink gel, & 20,000# 20/40 sand.

Well Log : All depths are measured relative to KB (8' AGL).

Shale w/ sand streaks	0	-	924
Coal	924	-	931
Shale	931	-	934
Sand	934	-	1012
shale	1012	-	1132
sand	1132	-	1150
shale	1150	-	1266
sand	1266	-	1280
shale	1280	-	1304
sand	1304	-	1324
shale	1324	-	1443
sand	1443	-	1494
shale	1494	-	1536
sand	1536	-	1594
shale	1594	-	1660
sand	1660	-	1698
shale	1698	-	1712
sand	1712	-	1727
shale	1727	-	1768
sand	1768	-	1782
shale	1782	-	1800
sand	1800	-	1860
shale	1860	-	1950
sand	1950	-	1963
shale	1963	-	1978
sand	1978	-	1985
shale	1985	-	1988
Big Lime	1988	-	2080
Big Linjun	2080	-	2313
shale	2313	-	2984
Gordon Stray	2984	-	3008
shale	3008	-	3114
Gordon	3114	-	3038
shale	3038	-	3044
sand	3044	-	3056
shale	3056	-	3155
sand	3155	-	3161
shale	3161	-	3312
TD	3312		

T.D. -Logger 3311 KB
 T.D. -Driller 3312 KB

Received

NOV 13 1988

Office of Oil and Gas
 U.S. Dept. of Environmental Protection

103027245

WW-3A

10/07



1) Date: October 21, 2013
2) Operator's Well No. s. L. Crane No. 306
3) API Well No. 47 103 - 2724
State County Permit
4) UIC Permit No. UIC2R10304AP

STATE OF WEST VIRGINIA
NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION
FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

5) Surface Owner(s) To Be Served

(a) Name Diana & Danny Briggs
Address HC 61, Box 28
Wileyville, WV 26186

(b) Name _____
Address _____

(c) Name _____
Address _____

6) Inspector Derek Haught
Address PO Box 85
Smithville, WV 26178
Telephone 206-7613

7 (a) Coal Operator

Name NA
Address _____

7 (b) Coal Owner(s) With Declaration Of Record

Name NA
Address _____

Name NA
Address _____

7(c) Coal Lessee With Declaration Of Record

CONSOL Energy Attn: Eric Shereda
1000 Consol Energy Drive
Cannonburg, PA 15317

TO THE PERSON(S) NAMED ABOVE: You should have received this form and the following documents:

- (1) The Application for a Liquid Injection or Waste Disposal Well Work Permit on Form WW-3(B), which sets out the parties involved in the drilling or other work;
- (2) The plat (surveyor's map) showing the well location on Form WW-6; and
- (3) The Construction and Reclamation Plan on Form WW-9 (unless the well work is only to plug a well), which sets out the plan for erosion and sediment control and for reclamation for the site and access road.

The date proposed for the first injection or waste disposal is NA

THE REASON YOU RECEIVED THESE DOCUMENTS IS THAT YOU HAVE RIGHTS REGARDING THE APPLICATION WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON FORM WW-3(A) DESIGNATED TO YOU. HOWEVER YOU ARE NOT REQUIRED TO TAKE ANY ACTION AT ALL.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a Well Work Permit with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to a well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, the plat, and the Construction and Reclamation Plan have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of the mailing or delivery to the Chief.

The person signing this document shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Well Operator HG Energy, LLC
Address 5260 Dupont Road
Parkersburg, WV 26101

By: Diane C. White
Its: Accountant

Signature Diane C. White

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at: depprivacyofficer@wv.gov

WW-2B1

Well No. s. L. Crane No. 306

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

If no water well or spring is located within 1000 feet, the Chief may require the operator to sample and analyze water from a water well or spring within 2000 feet of the proposed well site.

Be advised, you have the right to sample and analyze any water supply at your own expense.

The laboratory used by the operator to analyze the samples will be approved by the Chief. The operator named below has decided to use the following laboratory to analyze the water samples:

X Contractor Name Sturm Environmental Services
 Well operator's private laboratory

Well Operator HG Energy, LLC
Address 5260 Dupont Road
Parkersburg, WV 26101
Telephone 304-420-1119

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underlining which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site please indicate such.

No known Water Supply Sources are located within 2000' of proposed well.

RECEIVED
OCT 20 11 10 AM
NOV 1 10 2013
ELECTRONIC
11/1/13

Form WW-9
Rev. 10/94

Page 3 of 3
API Number 47- 103 - 272d
Operator's Well No. s. L. Crane No. 306

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator HG Energy, LLC OP Code 404497948
Watershed Little Fishing Creek Quadrangle Big Run 7.5'
Elevation 939' County Wetzel District Center
Description of anticipated Pit Waste: A pit will not be used
Do you anticipate more than 5,000 bbls of water to complete the proposed well work? Yes No X
Will a synthetic liner be used in pit? NA If so, what mil.
Proposed Disposal Method For Treated Pit Wastes:
 Land Application
 Underground Injection (UIC Permit Number)
 Reuse (at API Number)
 Off Site Disposal (Supply Form WW-9 for disposal location)
 Other (Explain)
Drilling medium anticipated for this well? Air, fresh water, oil based, etc. NA
- If oilbased, what type? Synthetic, petroleum, etc.
Additives to be used? NA
Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc.
- If left in pit and plan to solidify, what medium will be used? Cement, lime, sawdust NA
- Landfill or offsite name/permit number?

DH
10-28-13

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Diane C. White
Company Official (Typed Name) Diane C. White
Company Official Title Accountant

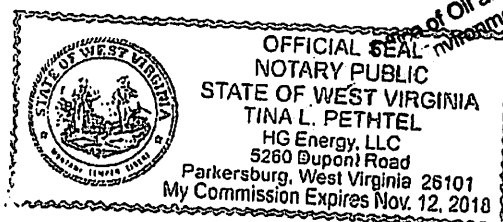
Subscribed and sworn before me this 22 day of October 2013

Tina L. Pettel

Notary Public

My commission expires Nov. 12, 2018

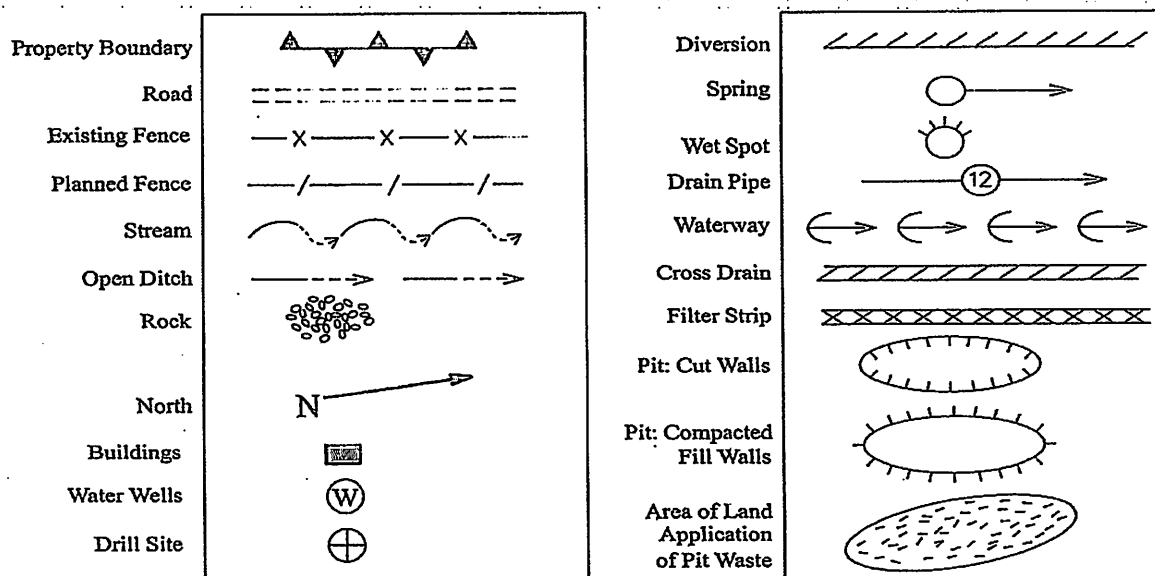
Form WW-9



Received
NOV 13 2013

Office of Oil and Gas
Environmental Protection

WW9-Rack

Legend

Proposed Revegetation Treatment: Acres Disturbed Area I Approx. 0.2 Ac. Prevegetation pH _____

Area II
Approx. 0.1 Ac.

Lime 2 Tons/Acre or Correct to pH 6.5
Fertilizer (10-20-20 or Equivalent) 500 Lbs./Acre (500 lbs. Minimum)
Mulch Straw 2 Tons/Acre

SEED MIXTURES

<u>Area I (Location)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

<u>Area II (Road)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

Attach:

Drawing(s) of road, location, pit and proposed area for land application
Photocopied section of involved 7.5' topographic sheet.

Plan approved by: [Signature]
Comments: _____

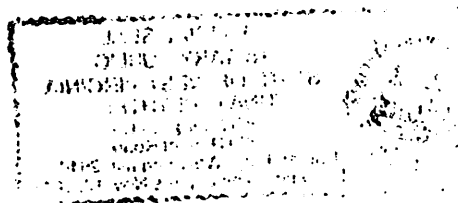
Title: Oil + Gas Inspector Date: 10-28-17

Field Reviewed? ☒ Yes ☐ No

Received

NOV 13 2017

Office of Oil and Gas
WV Dept. of Environmental Protection

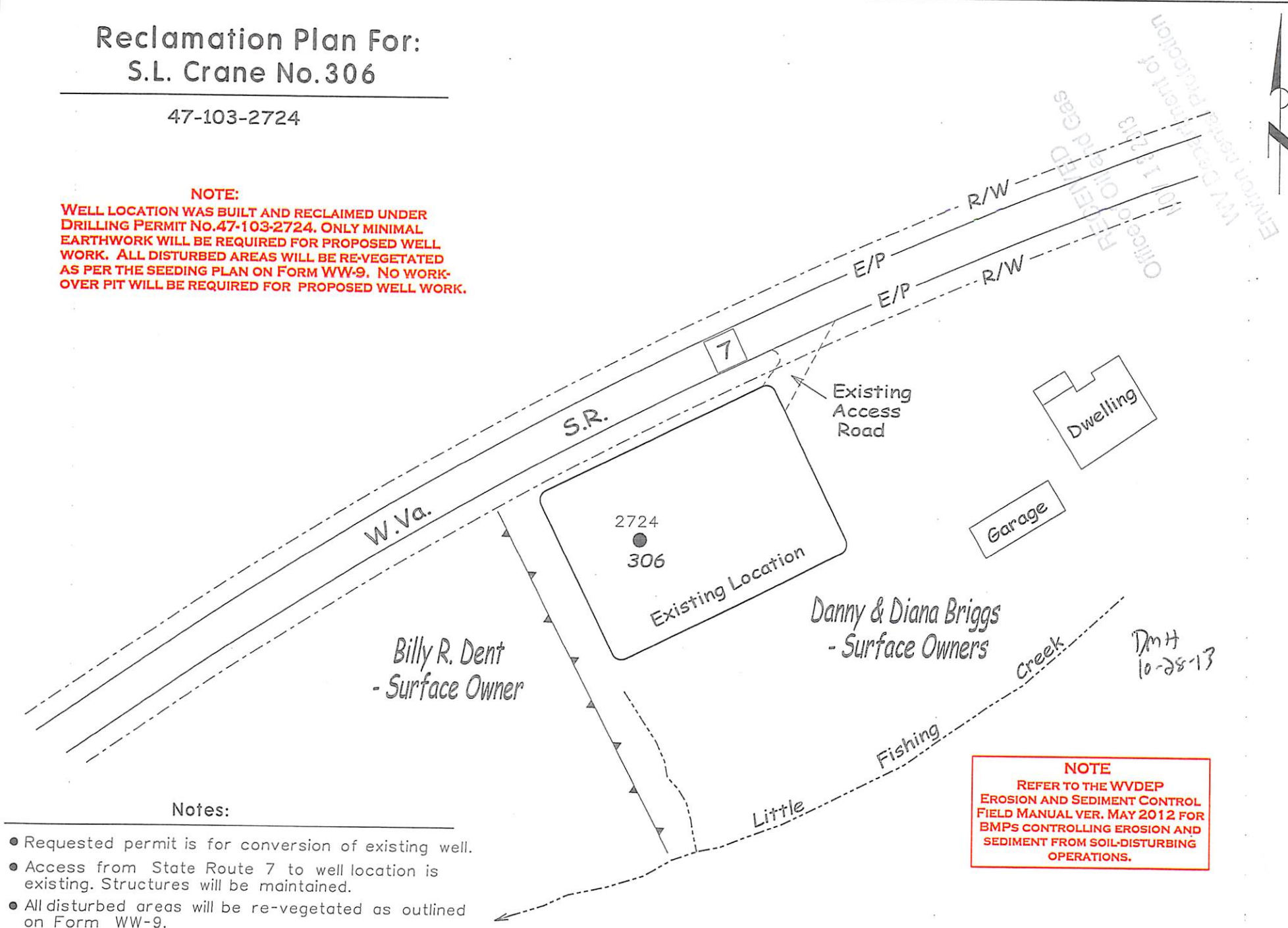


Reclamation Plan For:
S.L. Crane No.306

47-103-2724

NOTE:

WELL LOCATION WAS BUILT AND RECLAIMED UNDER DRILLING PERMIT NO.47-103-2724. ONLY MINIMAL EARTHWORK WILL BE REQUIRED FOR PROPOSED WELL WORK. ALL DISTURBED AREAS WILL BE RE-VEGETATED AS PER THE SEEDING PLAN ON FORM WW-9. NO WORK-OVER PIT WILL BE REQUIRED FOR PROPOSED WELL WORK.



Notes:

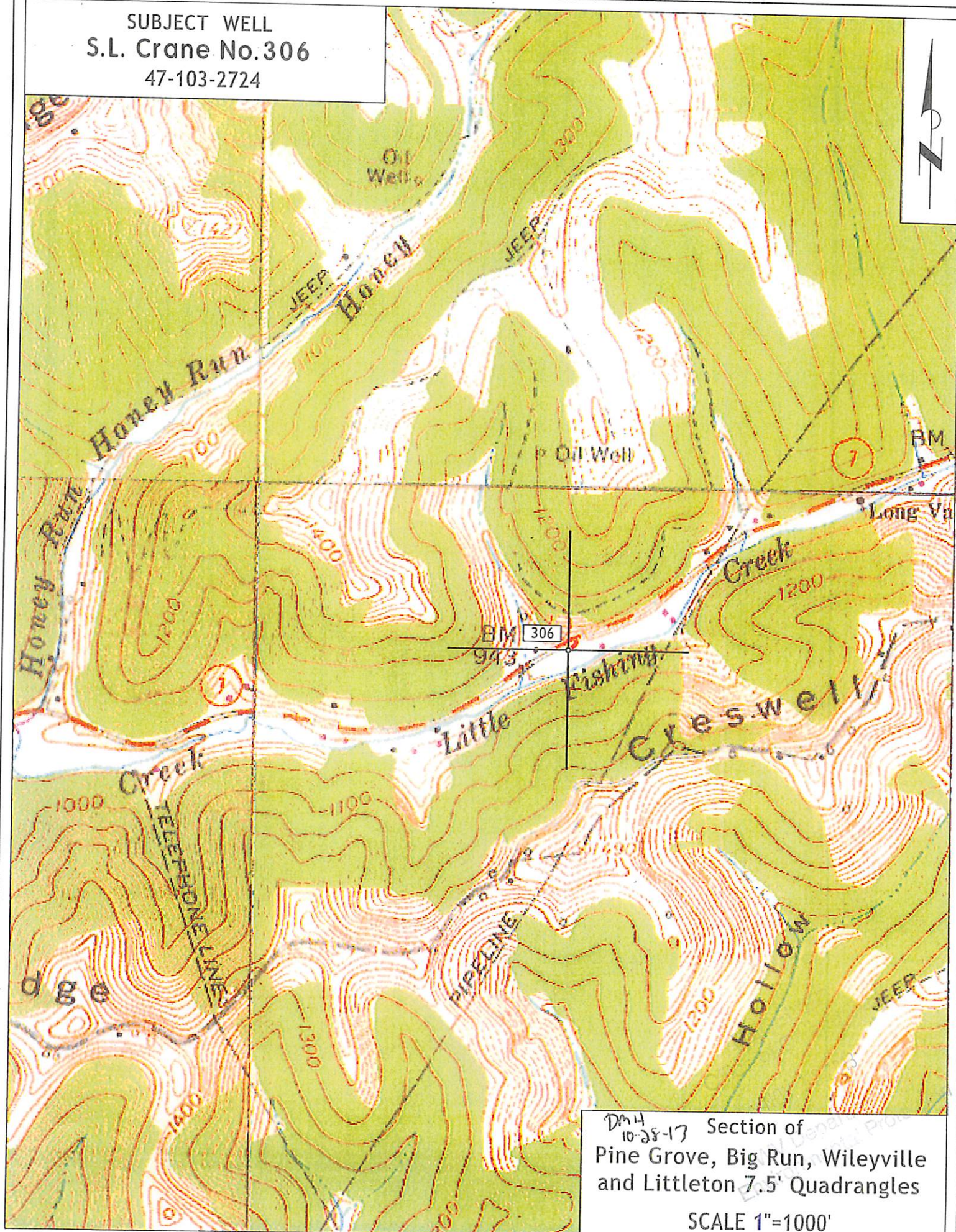
- Requested permit is for conversion of existing well.
- Access from State Route 7 to well location is existing. Structures will be maintained.
- All disturbed areas will be re-vegetated as outlined on Form WW-9.
- Maintain sediment barriers and drainage structures.
- All road grades <5% except as noted.

NOTE

REFER TO THE WVDEP
EROSION AND SEDIMENT CONTROL
FIELD MANUAL VER. MAY 2012 FOR
BMPs CONTROLLING EROSION AND
SEDIMENT FROM SOIL-DISTURBING
OPERATIONS.

Note: Drawing not to Scale

SUBJECT WELL
S.L. Crane No.306
47-103-2724

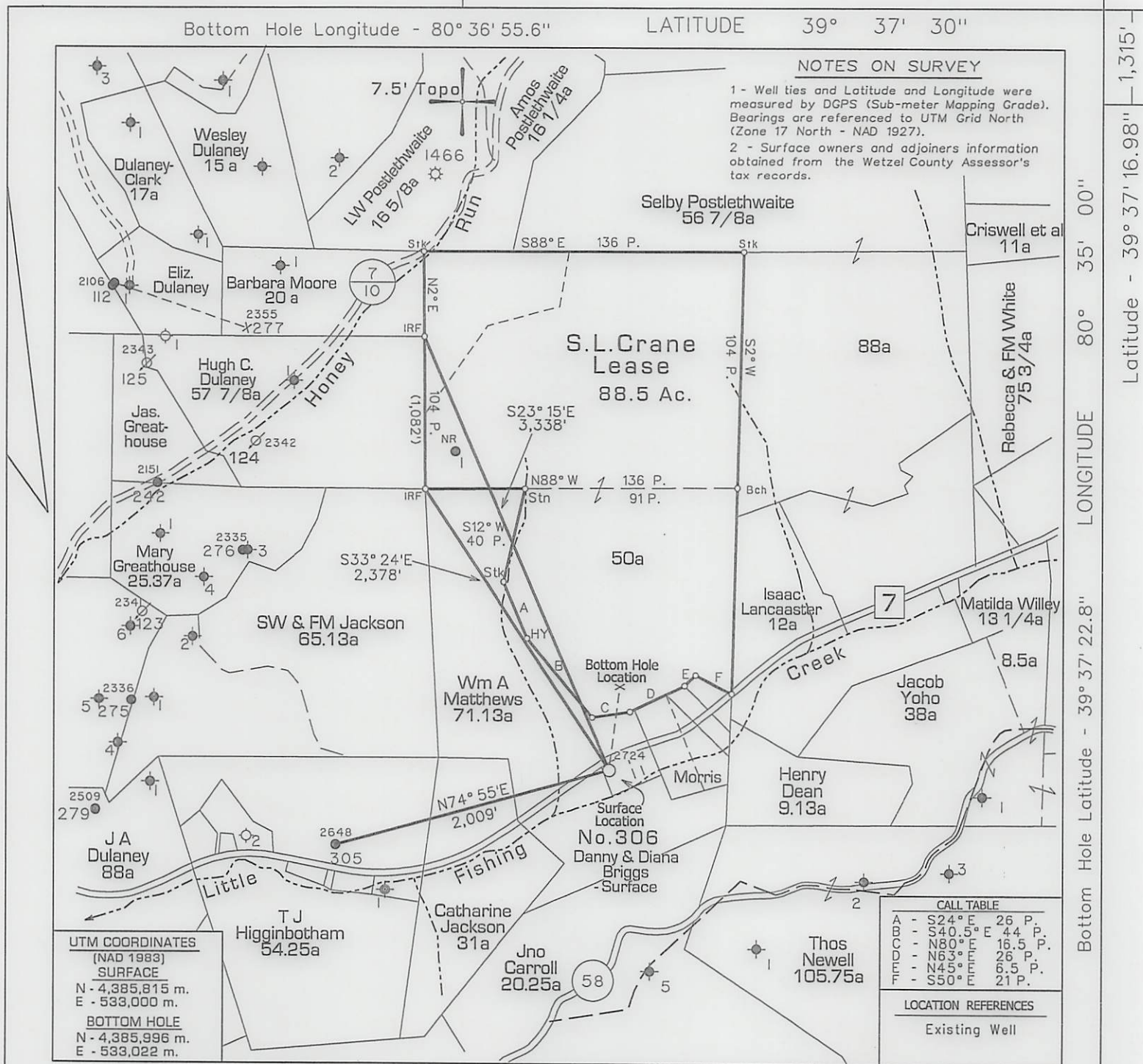


Longitude - 80° 36' 56.55"

9,115'

Bottom Hole Longitude - 80° 36' 55.6"

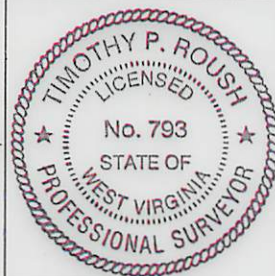
LATITUDE 39° 37' 30"



FILE NO. 1046-25
MAP NO. N S E W
SCALE 1" = 1,000'
MINIMUM DEGREE OF
ACCURACY Sub-Meter
PROVEN SOURCE OF
ELEVATION DGPS Survey
(Sub-Meter Mapping Grade)

I THE UNDERSIGNED, HEREBY CERTIFY THAT
THIS PLAT IS CORRECT TO THE BEST OF MY
KNOWLEDGE AND BELIEF AND SHOWS ALL THE
INFORMATION REQUIRED BY LAW AND THE REGU-
LATIONS ISSUED AND PRESCRIBED BY THE DEPART-
MENT OF MINES.

(SIGNED) 
TIMOTHY P. ROUSH PS 793



WEST VIRGINIA
Division of Environmental Protection
Office of Oil and Gas
601 57th Street
Charleston, West Virginia 25304



DATE October 21, 2013
FARM S.L. Crane No.306
API WELL NO.

47-103-02724S

WELL TYPE: OIL GAS LIQUID INJECTION ☒ WASTE DISPOSAL HORIZONTAL
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW ☒ CBM
LOCATION: ELEVATION 939' WATERSHED Little Fishing Creek
DISTRICT Center COUNTY Wetzel
QUADRANGLE Big Run 7.5'

SURFACE OWNER Danny & Diana Briggs ACREAGE 1.23 Ac.
OIL & GAS ROYALTY OWNER James E. Ashcroft et al. LEASE ACREAGE 142.5 Ac.
LEASE NO. 107764-00

PROPOSED WORK: DRILL ☐ CONVERT ☒ DRILL DEEPER REDRILL FRACTURE OR
STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW
FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) CONVERT TO LIQUID INJECTION

PLUG AND ABANDON CLEAN OUT AND REPLUG
TARGET FORMATION Gordon ESTIMATED DEPTH 3,312' MD
WELL OPERATOR HG Energy, LLC DESIGNATED AGENT Mike Kirsch
ADDRESS 5260 Dupont Road ADDRESS 5260 Dupont Road
Parkersburg, WV 26101 Parkersburg, WV 26101

Bottom Hole Latitude - 39° 37' 22.8" LONGITUDE 80° 35' 00"

Latitude - 39° 37' 16.98" - 1,315'